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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/828,914

04/10/2001

Masaki Kato

109187

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25944

7590

11/08/2002

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EXAMINER

NGUYEN, HUNG

ART UNIT

PAPER NUMBER

2851

DATE MAILED: 11/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/828,914

Applicant(s)

KATO ET AL.

Examiner

Hung Henry V Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-66 is/are pending in the application.
- 4a) Of the above claim(s) 46-66 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-27, 29, 36-45 is/are allowed.
- 6) ☒ Claim(s) 1,2,5-13,28,30,31,34 and 35 is/are rejected.
- 7) ☒ Claim(s) 3,4,32 and 33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5-6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of group I (claims 1-45) in Paper No. 11 is acknowledged. The traversal is on the ground(s) that the subject matter of all pending claims is sufficiently related therefore search and examination of entire application could be made without serious burden on the Examiner. This is not found persuasive because invention I is explicitly drawn to an exposure method and corresponding method for adjusting the image characteristics of the optical imaging system based on the changes of the illumination regions formed on the mask or the photosensitive substrate. Whereas, inventions of claims 46-66 are related to a method for manufacturing an exposure apparatus including specific steps for correcting the aberration of the illumination system and controlling the illumination optical system based on the detected optical characteristics of the illumination optical system. As such, the distinct, separate searches are quite extensive and place serious burden on the Examiner in regard to both search and examination.

The requirement is still deemed proper and is therefore made FINAL.

Abstract

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

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The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because the following term should be omitted:

"comprises" in line 3 and 7. Correction is required.

Drawings

3. The drawings are objected to because in fig. 1, each of boxes 40-44 should be labeled out by its own name. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2, 5-13, 28, 30-31, and 34-35, are rejected under 35 U.S.C. 102(b) as being anticipated by Nishi et al (U.S.Pat. 5,591,958).

With respect to claims 1, 30, Nishi et al discloses an exposure apparatus for transferring a predetermined pattern formed on a reticle onto a photosensitive substrate and comprising all basic features of the instant claims such as: a light source (23) for supplying illumination light; an illumination optical system (8, 27-51) an illumination area defining unit (41,49) and an imaging optical system (see fig.1) for guiding light from the light source to the reticle (R) where

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the illumination area defining unit (41,49) placed “at a position substantially optically conjugate” with the reticle for defining a desired illumination area and an adjustment system (25, 22, 57, MC) for adjusting an optical characteristics of the illumination area formed on the reticle or in an exposure area formed on the substrate;

As to claim 2, and 31, Nishi teaches a projection optical system (8) for projecting an image of the pattern formed on the reticle onto the substrate.

With respect to claims 5-13, 28, 34-35, Nishi further teaches the adjustment unit including moving units (42, 22, RST) for adjusting at least one of the magnification, distortion, astigmatism, curvature of field, spherical aberration, coma, image surface tilting, decentering distortion, decentering coma, and decentering astigmatic difference in the imaging optical system (see col.9, lines 18 to col.26, line 67).

6. Claims 1-2, 5-13, 28, 30-31, and 34-35, are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Taniguchi (U.S.Pat. 5,721,608).

With respect to claims 1-2, 5-13, 28, 30-31, 34-35, Taniguchi discloses an exposure apparatus for transferring a pattern formed on a mask onto a substrate and comprising all of the limitations of the instant claims (see fig.1).

7. Claims 1-2, 30-31, and 34-35 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Suzuki et al (U.S.Pat. 4,780,747) or Tanaka (U.S.Pat. 4,668,0777).

With respect to claims 1-2, 30-31, 34-35, Suzuki/or Tanaka discloses an exposure apparatus comprising all basic features of the instant application including a light source, an

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illumination system, an illumination area defining unit, an imaging optical system and a projection optical system as claimed. (see fig.1 of Suzuki and Tanaka).

Allowable Subject Matter

8. Claims 3-4, 32-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
9. Claims 14-27, and 29, 36-45 are allowed.
10. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record either alone or in combination, neither discloses nor makes obvious an exposure apparatus and corresponding method having an illumination optical system, along with an illumination area defining unit, an imaging optical system, and an adjusting unit, satisfying specific conditions as recited in above claims of the instant invention.

Prior Art Made of Record

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Nishi (U.S.Pat. 5,473,410) discloses an exposure apparatus comprising substantially all elements as recited in the instant claims.

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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V Nguyen whose telephone number is 703-305-6462. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 703-308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7723 for regular communications and 703-305-7723 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4900.


Hung Henry V Nguyen
Examiner
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hvn
November 7, 2002